CLAIMS

1. A method of manufacturing a crystal resonator using a crystal substrate, comprising the steps of:

forming a crystal resonator area and side electrode shielding/formation blocks thereabout on said crystal substrate through etching by leaving a partial connection section and with both areas kept separate from each other with a gap; and

applying vapor deposition through said gap diagonally toward the side of said crystal substrate, producing an area where a film is formed on said side and an area where film formation is prevented by the existence of the side electrode shielding/formation blocks and thereby forming an electrode film bisected in the thickness direction of the substrate on the side.

2. The method of manufacturing a small crystal resonator according to claim 1, wherein by adjusting the size of the gap between said crystal resonator area and the side electrode shielding/formation block, said side electrode shielding/formation block is constructed of an area where said bisected electrode film is formed and an area where formation of the electrode film is prevented.

3. The method of manufacturing a small crystal resonator according to claim 1, wherein vapor deposition toward the side of said crystal substrate is performed in a range of angle of incidence of ±45° to 55° with respect to the side of the crystal substrate.

4. The method of manufacturing a small crystal resonator according to claim 1, wherein said electrode film divided into upper and lower portions is formed on the side of the vibration section of the crystal resonator.

5. The method of manufacturing a small crystal resonator according to claim 4, wherein $0.15t \leq d \leq 0.25t$ is held where t is the thickness of said vibration section and d is said gap.

6. The method of manufacturing a small crystal resonator according to claim 1, wherein said crystal resonator is a quartz crystal tuning fork including a vibration section made up of a base and a plurality of vibration tines which extend from the base and said electrode film divided into upper and lower portions is formed on the side of the vibration section and the side of the base.

7. The method of manufacturing a small crystal resonator according to claim 1, wherein said crystal resonator is a resonator for a vibration gyro having three vibration tines and said electrode film divided into upper and lower portions is provided on the side of the tine for detection of Coriolis force out of said three vibration tines.

8. The method of manufacturing a small crystal resonator according to any one of claims 1 to 7, wherein the thickness t of said crystal resonator is $100\ \mu m \leq t \leq 350\ \mu m$.

9. The method of manufacturing a small crystal resonator according to claim 1, wherein said crystal resonator is a quartz crystal tuning fork including a vibration section made up of

a base and a plurality of vibration tines which extend from the base and part of side electrode shielding/formation block is provided so as to insert between said vibration tines.

10. A small crystal resonator created using the manufacturing method according to any one of claims 1 to 9.